

## Appendix B.—Guide for Placing Soils in Capability Classes

Criteria	Capability class							
	I	II	III	IV	V	VI <sup>1</sup>	VII <sup>2</sup>	VIII
Soil depth (in) <sup>3</sup> ..	≥40	≥40	≥20	≥10	≥20	≥10	Any	Any
ETp 32 degrees F <sup>4</sup> .....	≥20	≥14	≥10	≥6	≥6	≥4	—	Any
4ETa <sup>5</sup> .....	≥20	≥16	≥12	≥8	≥8	≥6	≥2	Any
Surface texture (irrigated) .....	SL-C	LS-C, may be GR	Any, may be GR, CB	Any, may be GRV, CBV, ST <sup>6</sup>	Any, may be GRX, CBX, STV	Any, may be GRX, CBX, STV	Any	Any
Surface texture (nonirrigated) ....	SL-CL	SL-C, may be GR	SL-C, may be, GR, CB	LS-C, GRV, CBV, ST <sup>6</sup>	Any, may be GRX, CBX, STV	Any, may be GRX, CBX, STV	Any	Any
Permeability (in/hr) <sup>7</sup> .....	0.2-6.0	0.06-20	<0.06-20	Any	Any	Any	Any	Any
Depth to water table (in) <sup>8</sup> .....	>60	>36	>20	>20	Any	Any	Any	Any
Available water capacity (in) <sup>9</sup> ...	≥7.5 avg. AWC ≥0.13 in/in	≥5.0 avg. AWC ≥0.08 in/in	≥3.5 avg. AWC ≥0.06 in/in	≥2.5 avg. AWC ≥0.04 in/in	≥3.0 avg. AWC	≥2.0 avg. AWC	≥1.0 avg. AWC	Any
Slope (%): <sup>10</sup> Group A .....	<2	<5	<8	<15	<2	<25	<50	Any
Group B .....	<2	<8	<15	<25	<2	<50	<75	Any
Erosion hazard ..	None or slight	None through moderate	None through high	Any	None or slight	Any	Any	Any
Flooding .....	None or rare	None through occasional	None through occasional	None through frequent <sup>11</sup>	Any	Any	Any	Any
Salinity/EC x 10 at 25 degrees C (mmhos/cm) <sup>12</sup>	<4	<8	<16	<16	<8	Dryland, <16 Irrigated, any	Any	Any
Alkali ESP <sup>12</sup> .....	None	<25	<50	<50	<25	Dryland, <25 Irrigated, <50	Any	Any
Toxic substances <sup>13</sup> ...	None	None or slight	None through moderate	None through moderate	None or slight	Dryland, slight Irrigated, slight through moderate	Any	Any

## Guide for Placing Soils in Capability Classes—Continued

Criteria	Capability class							
	I	II	III	IV	V	VI <sup>1</sup>	VII <sup>2</sup>	VIII
Frost-free season (32 degrees F)	≥140 days	≥100 days	≥80 days	≥50 days	Any	Any	Any	Any

<sup>1</sup> Range and woodland mechanical practices can be applied to class VI land.

<sup>2</sup> Range and woodland mechanical practices are impractical on class VII land.

<sup>3</sup> Claypans with permeability of less than 0.06 inch/hour will be treated as limiting the effective depth.

<sup>4</sup> Potential evapotranspiration for the frost-free season above 32 degrees F is a relative index for irrigated frost-sensitive crops. ETp 32 degrees F for Marysville, California, is 33.

<sup>5</sup> Actual evapotranspiration, 4-inch available water capacity, is a relative index for frost-tolerant dryland crops, such as small grain, and for pasture and range. 4ETa for Marysville, California, is 12.

<sup>6</sup> Coarse fragments interfere with tillage but do not prevent cropping.

<sup>7</sup> Permeability of the least permeable subsurface horizon.

<sup>8</sup> Depth to the water table during the growing season.

<sup>9</sup> Available moisture between field capacity and wilting point.

<sup>10</sup> Group A includes soils with K factors of 0.37 or more and soils that are subject to rill and gully erosion, such as soils that formed in granitic material and soils that have a claypan. Other soils are in group B.

<sup>11</sup> Frequent flooding that does not prevent normal cropping.

<sup>12</sup> For salts and alkali to be a major limitation, there should be other soil limitations, such as slow permeability and a high water table.

<sup>13</sup> Such as boron and magnesium, which are leached with difficulty.

## Guide for Placing Soils in Capability Subclasses in California—A

(Where wind velocities are low and/or soils are irrigated. Only soils in capability classes II through VIII are assigned to a subclass)

Soil properties	Subclass by slope range			
	0-2%	2-9%	9-15%	15+%
1. Moderately slowly, moderately, moderately rapidly, rapidly, and very rapidly permeable, moderately well drained, well drained, somewhat excessively drained, and excessively drained soils more than 20 inches deep that have the following textures:				
a. Fine and very fine .....	s	e	e	e
b. Moderately fine .....	s <sup>1,2</sup>	e	e	e
c. Medium .....	s <sup>1,2</sup>	e	e	e
d. Moderately coarse, with or without a textural B .....	s <sup>1,2</sup>	e	e	e
e. Coarse and very coarse, with a textural B .....	s	e	e	e
f. Coarse and very coarse, with little or no textural B .....	s	s	s	e
2. Slowly and very slowly permeable soils that are more than 20 inches deep: <sup>3</sup>				
a. Well drained and moderately well drained .....	s	e	e	e
b. Somewhat poorly drained .....	w	e	e	e
3. Wet, poorly drained and very poorly drained soils:				
a. Moderately coarse to fine textured (includes claypans and fragipans) .....	w	w	w	e
b. Coarse textured with little or no textural B <sup>4</sup> .....	w	w	w	e
c. Deep organic soils <sup>4</sup> .....	w	w	w	e
4. Excessively drained, somewhat excessively drained, and moderately well drained, shallow and very shallow soils:				
a. 10 to 20 inches deep to bedrock .....	s	e	e	e
b. 0 to 10 inches deep to bedrock .....	s	s	s	s <sup>5</sup>

### Guide for Placing Soils in Capability Subclasses—A (Continued)

Soil properties	Subclass by slope range			
	0-2%	2-9%	9-15%	15+%
5. Excessively drained, somewhat excessively drained, well drained, and moderately well drained, saline and sodic soils (moderate to severe salinity and sodicity) .....	s	e	e	e
6. Soils that have a very cobbly, extremely cobbly, very gravelly, extremely gravelly, very stony, or extremely stony surface layer .....	s	s	s	s <sup>6</sup>
7. Soils that are subject to damaging overflow .....	w	w	w	e

<sup>1</sup> Where these soils are more than 40 inches deep, they are generally in class I.

<sup>2</sup> Use "c" only for dryland if soil is class I in irrigated areas.

<sup>3</sup> Permeability of the B horizon or control section.

<sup>4</sup> Including somewhat poorly drained soils.

<sup>5</sup> Subclass "e" if slope is more than 50 percent.

<sup>6</sup> Subclass "e" if slope is more than 30 percent.

## Guide for Placing Soils in Capability Subclasses in California—B

(Where wind velocities are high and the soils are not irrigated. Only soils in capability classes II through VIII are assigned to a subclass)

Soil properties	Subclass by slope range			
	0-2%	2-9%	9-15%	15+%
1. Moderately slowly, moderately, moderately rapidly, rapidly, and very rapidly permeable, moderately well drained, well drained, somewhat excessively drained, and excessively drained soils more than 20 inches deep that have the following textures:				
a. Fine and very fine .....	s	e	e	e
b. Moderately fine .....	e	e	e	e
c. Medium .....	e	e	e	e
d. Moderately coarse, with or without a textural B .....	e	e	e	e
e. Coarse and very coarse, with a textural B .....	e	e	e	e
f. Coarse and very coarse, with little or no textural B .....	e	e	e	e
2. Slowly and very slowly permeable soils that are more than 20 inches deep: <sup>1</sup>				
a. Well drained and moderately well drained .....	s	e	e	e
b. Somewhat poorly drained .....	w	e	e	e
3. Wet, poorly drained and very poorly drained soils:				
a. Moderately coarse to fine textured (includes claypans and fragipans) .....	w	w	w	e
b. Coarse textured with little or no textural B <sup>2</sup> .....	w	w	w	e
c. Deep organic soils <sup>2</sup> .....	w	w	w	e
4. Excessively drained, somewhat excessively drained, and moderately well drained, shallow and very shallow soils:				
a. 10 to 20 inches deep to bedrock .....	s	s	e	e
b. 0 to 10 inches deep to bedrock .....	s	s	s	s <sup>3</sup>

### Guide for Placing Soils in Capability Subclasses—B (Continued)

Soil properties	Subclass by slope range			
	0-2%	2-9%	9-15%	15+%
5. Excessively drained, somewhat excessively drained, well drained, and moderately well drained, saline and sodic soils (moderate to severe salinity and sodicity) .....	s	e	e	e
6. Soils that have a very cobbly, extremely cobbly, very gravelly, extremely gravelly, very stony, or extremely stony surface layer .....	s	s	s	s <sup>4</sup>
7. Soils that are subject to damaging overflow .....	w	w	w	e

<sup>1</sup> Permeability of the B horizon or control section.

<sup>2</sup> Including somewhat poorly drained soils.

<sup>3</sup> Subclass "e" if slope is more than 50 percent.

<sup>4</sup> Subclass "e" if slope is more than 30 percent.